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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/108,447	07/01/1998	GERALD N. COLEMAN	97-677	2408

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EXAMINER

JOHNSON, JERRY D

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 07/08/2003

40

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/108,447

Applicant(s)

COLEMAN ET AL.

Examiner

Jerry D. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,9 and 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7, 9 and 11-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 22, 2003 has been entered.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-7, 9 and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin in view of WO 95/27021 and Schwab.

Dubin, U.S. Patent 5,284,492, teaches an enhanced lubricity water and fuel oil emulsion (column 3, lines 31-37). The emulsion can be either a water in fuel oil or a fuel oil in water emulsion (column 3, lines 41-44). The oil phase comprises a light fuel oil, by which is meant a fuel oil having little or no aromatic compounds and consists essentially of relatively low molecular weight aliphatic and naphthenic hydrocarbons (column 3, lines 45-49). Such fuels include fuels conventionally known as, *inter alia*, diesel fuel (column 3, lines 61-68). The emulsions advantageously comprise water-in-fuel oil emulsions having up to about 90% water by weight. The emulsions which have the most practical significance in applications when combusted alone are those having about 5% to about 50% water and are preferably about 10% to about 35% water-in-fuel oil by weight (column 4, lines 7-15). Although demineralized water is not required, the use of demineralized water in the emulsion is preferred (column 4, lines 30-35). The emulsions are prepared such that the discontinuous phase preferably has a particle size wherein at least about 70% of the droplets are below about 5 microns Sauter mean diameter. More preferably,

at least about 85%, and most preferably at least about 90% of the droplets are below about 5 microns Sauter mean diameter (column 4, lines 38-44). An emulsification system is most preferably employed to maintain the emulsion. A desirable emulsification system comprises about 25% to about 85% by weight of an amide, especially an alkanolamide or n-substituted alkyl amine; about 5% to about 25% by weight of a phenolic surfactant; and about 0% to about 40% by weight of a difunctional block polymer terminating in a primary hydroxyl group (column 5, lines 2+). The addition of a component selected from the group consisting of dimer and/or trimer acids, sulfurized castor oil, phosphate esters, and mixtures thereof significantly increase the lubricity of the emulsion (column 7, lines 15+). The addition of a corrosion inhibitor is taught in column 8, lines 56 to column 9, line 2. Dubin differs from the instant claims in not teaching the addition of an antifreeze additive or an ignition delay modifier.

WO 95/27021 (hereafter WO '021) teaches aqueous fuel compositions for internal combustion engines and a method of producing the same (page 1, lines 27-30). The fuel comprises a fluid emulsion comprising 20 to 80 vol. % water and carbonaceous fuel, preferably 40 to 60 % carbonaceous fuel, about 2 to less than 20 vol. % alcohol, and about 0.3 to 1 vol. % of a nonionic emulsifier (page 1, lines 30-36). The term "internal combustion engine" refers to and encompass any engine in which carbonaceous fuel is combusted with oxygen in one or more combustion chambers of the engine. Presently known such engines include piston displacement engines, rotary engines and turbine (jet) engines, including electric spark ignited and compression, e.g., diesel engines (page 2, lines 27-31). Tests of fuel mixtures with varying alcohol contents have established the stability of the formulation is good with at least 2% alcohol. (Page 8, lines 13-14). Freezing-point observations indicated a dramatic lowering of the freezing point as the percentage of alcohol is increased (page 8, lines 17-19).

Schwab, U.S. Patent 5,669,938, teaches diesel fuel emulsions containing an emission reducing amount of at least one fuel-soluble organic nitrate ignition improver such as 2-ethylhexyl nitrate (abstract). The organic nitrate ester employed will fall in the range of about 500 to about 50,000 parts by weight of organic nitrate ester per

mission parts by weight of the fuel. Preferred concentrations usually fall within the range of 1,000 to 10,000 parts per million parts of fuel (column 3, lines 30-35). Other additives may be included within the fuel composition (column 4, lines 52-60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add the organic nitrate ignition improver of Schwab and the anti-freeze inhibitor of WO '021 to the diesel fuel emulsion of Dubin in order to provide their known benefits.

Claims 1, 3-7, 9 and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peter-Hoblyn et al in view of WO 95/27021 and Schwab.

Peter-Hoblyn et al, U.S. Patent 5,743,922 (hereafter "Peter"), teach a water and diesel fuel emulsion containing up to about 70%, more preferably about 5% to about 70% water-in diesel fuel. Most preferably, the emulsion comprises about 15% to about 45% water in diesel fuel. The water which is used to form the emulsion is preferably demineralized water (column 2, line 53 to column 3, line 15). The emulsions are prepared such that the discontinuous phase preferably has a particle size wherein at least about 70% of the droplets are below about 5 microns Sauter mean diameter. More preferably, at least about 85%, and most preferably at least about 90% of the droplets are below about 5 microns Sauter mean diameter (column 3, lines 35-41). A desirable emulsification system comprises about 25% to about 85% by weight of an amide, especially an alkanolamide or n-substituted alkyl amine; about 5% to about 25% by weight of a phenolic surfactant; and about 0% to about 40% by weight of a difunctional block polymer terminating in a primary hydroxyl group (column 4, lines 28+). The addition of a component selected from the group consisting of dimer and/or trimer acids, sulfurized castor oil, phosphate esters, and mixtures thereof significantly increase the lubricity of the emulsion (column 5, lines 47+). The addition of a corrosion inhibitor is taught in column 7, lines 28-41).

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Peter differs from the instant claims in not teaching the addition of an antifreeze additive or an ignition delay modifier.

WO 95/27021 (hereafter WO '021) teaches aqueous fuel compositions for internal combustion engines and a method of producing the same (page 1, lines 27-30). The fuel comprises a fluid emulsion comprising 20 to 80 vol. % water and carbonaceous fuel, preferably 40 to 60 % carbonaceous fuel, about 2 to less than 20 vol. % alcohol, and about 0.3 to 1 vol. % of a nonionic emulsifier (page 1, lines 30-36). The term "internal combustion engine" refers to and encompass any engine in which carbonaceous fuel is combusted with oxygen in one or more combustion chambers of the engine. Presently known such engines include piston displacement engines, rotary engines and turbine (jet) engines, including electric spark ignited and compression, e.g., diesel engines (page 2, lines 27-31). Tests of fuel mixtures with varying alcohol contents have established the stability of the formulation is good with at least 2% alcohol. (Page 8, lines 13-14). Freezing-point observations indicated a dramatic lowering of the freezing point as the percentage of alcohol is increased (page 8, lines 17-19).

Schwab, U.S. Patent 5,669,938, teaches diesel fuel emulsions containing an emission reducing amount of at least one fuel-soluble organic nitrate ignition improver such as 2-ethylhexyl nitrate (abstract). The organic nitrate ester employed will fall in the range of about 500 to about 50,000 parts by weight of organic nitrate ester per million parts by weight of the fuel. Preferred concentrations usually fall within the range of 1,000 to 10,000 parts per million parts of fuel (column 3, lines 30-35). Other additives may be included within the fuel composition (column 4, lines 52-60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add the organic nitrate ignition improver of Schwab and the anti-freeze inhibitor of WO '021 to the diesel fuel emulsion of Peter in order to provide their known benefits.

Applicant's arguments filed April 22, 2003 have been fully considered but they are not persuasive.

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Applicants argue

Dubin, WO 95/27021, and Schwab do not teach an "...emulsion having an average droplet diameter of about 6 microns to less than about 10 microns." (Remarks, page 6).

Applicants' argument lacks merit.

Dubin teaches emulsions wherein the discontinuous phase *preferably* has a particle size wherein at least about 70% of the droplets are below *about 5 microns* Sauter mean diameter. More preferably, at least about 85%, and most preferably at least about 90% of the droplets are below about 5 microns Sauter mean diameter (Dubin, column 4, lines 38-44). It is well established that the broadening term "about" allows for some variance on either side of the value. Accordingly, the *preferred* "about 5 microns" (as taught by Dubin) would render obvious, if not anticipating, the "about 6 microns" of the claims. Further, Dubin teaches that "emulsion stability is largely related to droplet size" (column 4, line 45). Dubin thus recognizes that droplet size is a result effective variable and there is no evidence of record that the claimed range gives unexpected results.

The above arguments apply equally to applicants' argument directed to the rejection under 35 U.S.C. § 103 based on Peter-Hoblyn et al., WO 95/27021 and Schwab.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry D. Johnson whose telephone number is (703) 308-2515. The examiner can normally be reached on 6:00-3:30, M-F, alternate Fridays off.

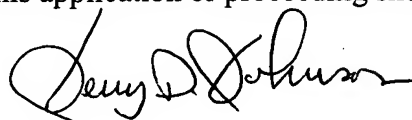
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Caldarola can be reached on (703) 308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-5408 for regular communications and (703) 305-3599 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in black ink, appearing to read "Jerry D. Johnson". The signature is fluid and cursive, with a large initial "J" and "D".

Jerry D. Johnson
Primary Examiner
Art Unit 1764

JDJ

July 2, 2003